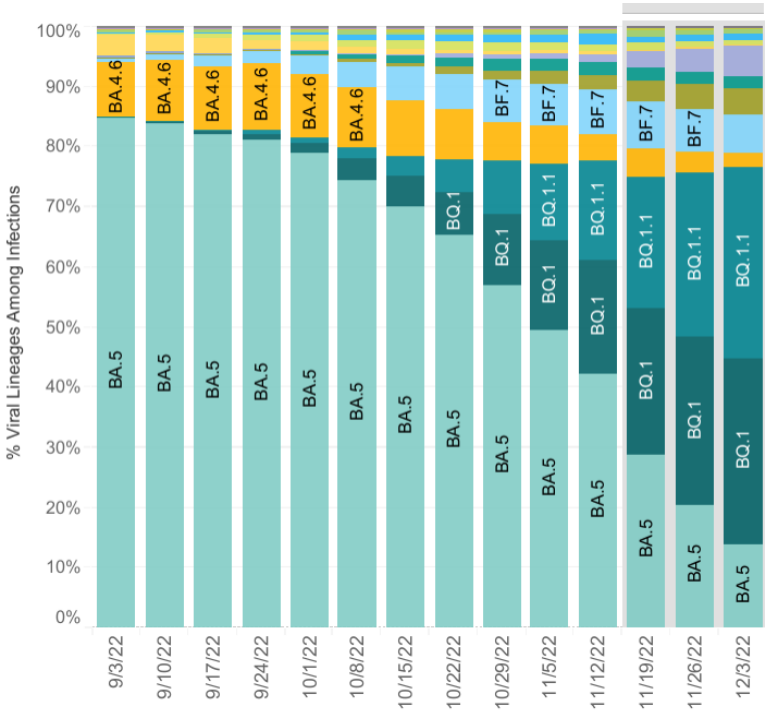
COVID-19 Variants, Subvariants, Drug Activity, and Information

Updated December 2, 2022 1:30 PM

CDC Nowcast as of December 3, 2022 – Nationwide Data



WHO label	Lineage #	US Class	%Total	95%PI
Omicron	BQ.1.1	VOC	31.9%	29.7-34.3%
	BQ.1	VOC	30.9%	28.7-33.3%
	BA.5	VOC	13.8%	11.9-15.8%
	BF.7	VOC	6.3%	5.4-7.3%
	XBB	VOC	5.5%	2.7-10.6%
	BN.1	VOC	4.6%	3.8-5.5%
	BA.4.6	VOC	2.3%	2.0-2.6%
	BA.5.2.6	VOC	1.8%	1.4-2.2%
	BF.11	VOC	0.9%	0.7-1.2%
	BA.2	VOC	0.8%	0.5-1.2%
	BA.2.75	VOC	0.7%	0.6-0.9%
	BA.2.75.2	VOC	0.5%	0.4-0.6%
	BA.4	VOC	0.0%	0.0-0.0%
	BA.1.1	VOC	0.0%	0.0-0.0%
	B.1.1.529	VOC	0.0%	0.0-0.0%
	BA.2.12.1	VOC	0.0%	0.0-0.0%
Delta	B.1.617.2	VBM	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.1%

Drug Activity Against SARS-CoV-2 Variants and Subvariants – as of 12/2/2022

	Omicron BA.5	Omicron BA.4.6	Omicron BQ.1	Omicron BQ.1.1	Omicron BF.7	Omicron BA.2.75	Omicron BA.4
EVUSHELD (mAb for PrEP, given intramuscularly)	Active	Not active	Not likely to be active	Not likely to be active	Not likely to be active	Active	Active
Bebtelovimab (mAb for Covid-19 treatment, given IV)	Due to the high frequency of variants/subvariants that are resistant to it, as of Nov 30, 2022, Bebtelovimab is not authorized for use in any U.S. Region						
Paxlovid (nirmatrelvir with ritonavir) (oral Covid-19 antiviral)	Active	Active	Active	Active	Active	Active	Active
Lagevrio (molnupiravir) (oral Covid-19 antiviral)	Active	Active	Active	Active	Active	Active	Active
Veklury (remdesivir) (IV Covid-19 antiviral)	Active	Active	Active	Active	Active	Active	Active

Key:

- Active = drug is currently active or believed to be active against this variant/subvariant
- Not likely to be active = based on testing, drug not likely to be active against this variant/subvariant
- Not active = based on testing, drug is **inactive** against this variant/subvariant
- No data = no testing has been reported about this drug against this variant/subvariant

Recent Developments / Talking Points:

- Mutations of the SARS-CoV-2 virus are an expected occurrence and have already taken place since the virus was originally discovered (e.g., alpha variant, beta variant)
- Changing epidemiology of Omicron variants and subvariants has effects on monoclonal antibody neutralizing activity against specific Omicron variants and subvariants.
- According to CDC Nowcast dated 12/3/2022, estimated prevalence of Omicron BA.5 variant continues to decrease while estimated prevalence of Omicron BQ.1 and BQ.1.1 subvariants continue to increase
- As of December 2, 2022, in HHS Region 3 (includes VA, DE, D.C., MD, PA, WV):
    - BA.5 estimated prevalence 13.4%
    - BQ.1.1 estimated prevalence 33.5%
    - BQ.1 estimated prevalence 30.6%

    } 64.1%

    - BA.4.6 estimated prevalence 2.7%
    - BF.7 estimated prevalence 6.5%
- On November 30, 2022, FDA revoked the Emergency Use Authorization for Bebtelovimab. The drug is now not authorized for use in any U.S. region due to the high frequency of SARS-CoV-2 variants that are non-susceptible to Bebtelovimab. Depending on what takes place with variant epidemiology, it's possible that Bebtelovimab's EUA could be reinstated in the future if the drug is found to be active against a majority of circulating SARS-CoV-2 variants.
- Note for clinicians: per the NIH COVID-19 Treatment Panel Guidelines, Bebtelovimab was considered a third-line drug for the treatment of COVID-19 in patients at high-risk for severe COVID-19 outcomes.
- Oral Paxlovid continues to be NIH's first-choice drug and IV remdesivir (brand name = Veklury) the next preferred option for treatment of COVID-19.
- On November 18, 2022, FDA issued an updated fact sheet about EVUSHELD with data about the drug's activity against Omicron variants/subvariants (see Table 6 on pages 20-21). EVUSHELD is not likely to be active against BQ.1, BQ.1.1, and BF.7.
- Prescribers are advised to monitor variant frequency in their area and refer to FDA fact sheets to see if a specific drug is expected to be active against specific variants/subvariants, particularly Omicron BQ.1 and BQ.1.1.
- Given that multiple variants/subvariants are resistant to EVUSHELD, patients with moderate to severe immunocompromise from any cause (e.g., disease-related or drug-related) should have a plan of action in place if they become ill with COVID-19 like symptoms. They are advised to: 1) have a supply of home COVID-19 tests available, 2) test themselves right away if they develop symptoms and/or signs of COVID-19, 3) if the patient is ill, contact their medical provider promptly with the result of the COVID-19 test, 4) have a mechanism in place to obtain Paxlovid promptly if the patient's healthcare provider prescribes it, and 5) if the patient is unable to take oral Paxlovid, talk with their medical provider about using an alternate drug such as remdesivir, Lagevrio, or convalescent plasma for COVID-19 treatment
- Currently, antiviral drugs Paxlovid (nirmatrelvir plus ritonavir), Lagevrio (molnupiravir), and Veklury (remdesivir) have activity against all Omicron variants/subvariants in the table on the previous page.
- "Legacy" monoclonal antibodies (Bamlanivimab/Etesevimab, REGEN-COV [casirivimab plus imdevimab], and sotrovimab), do NOT have an EUA for any current use including treatment of COVID-19 or postexposure prophylaxis. These drugs are not active against newer Omicron variants.

Sources:

- CDC COVID Data Tracker
- Bebtelovimab
  - FDA. FDA Announces Bebtelovimab is Not Currently Authorized in Any U.S. Region (11/30/22)
  - FDA. Fact Sheet for Healthcare Providers: Emergency Use Authorization for Bebtelovimab (revised 11/2022)
- EVUSHELD
  - CDC. Pre-exposure Prophylaxis with EVUSHELD
  - FDA. Fact Sheet For Healthcare Providers: Emergency Use Authorization For EVUSHELD (tixagevimab co-packaged with cilgavimab) (revised 11/2022)